

J. NORTHROP.
HOPPER FOR FILLING REPLENISHING LOOMS.
APPLICATION FILED APR. 22, 1910.

987,816.

Patented Mar. 28, 1911.

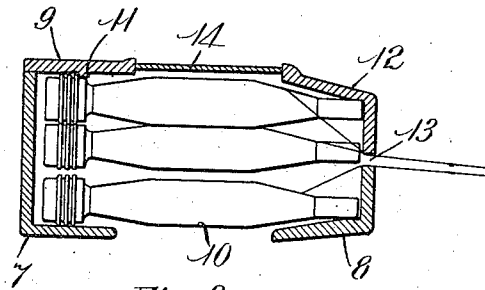


Fig. 3.

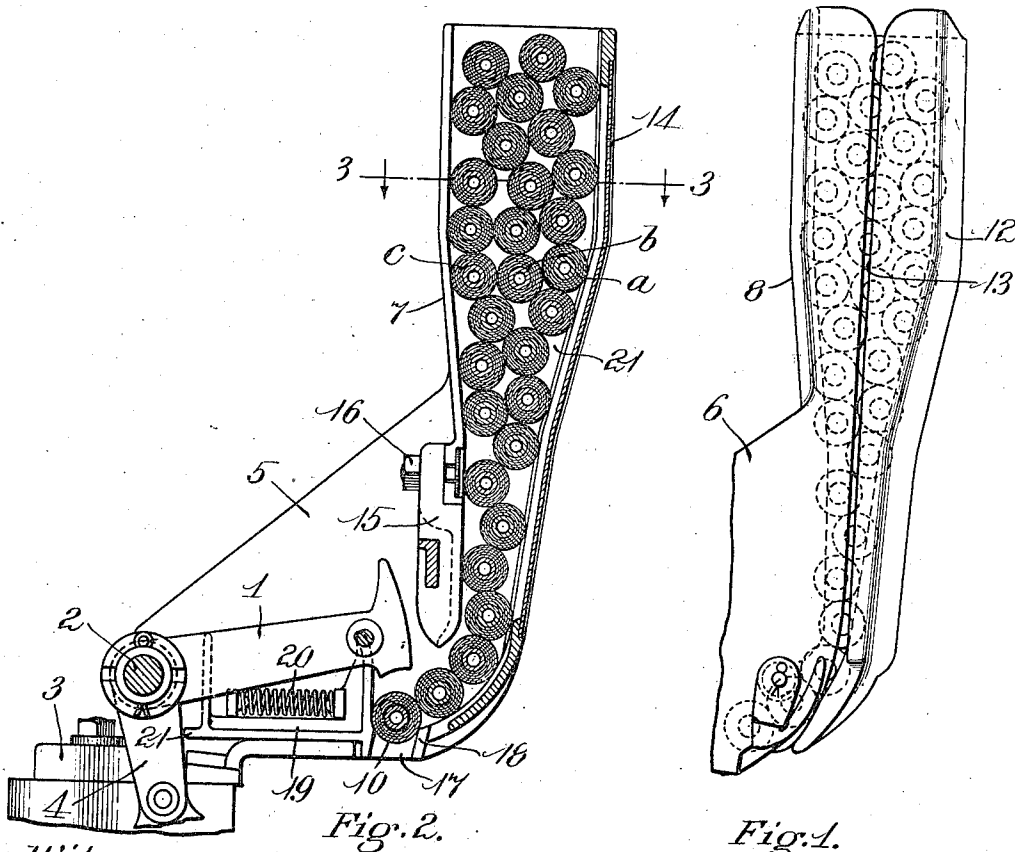


Fig. 2.

Fig. 1.

Witnesses:

Amelia M. Rose
Marion F. Kimball

Inventor:

Jonas Northrop.

Robt. T. Hains.

by

Att'y

UNITED STATES PATENT OFFICE.

JONAS NORTHROP, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO CLARE H. DRAPER,
OF HOPEDALE, MASSACHUSETTS.

HOPPER FOR FILLING-REPLENISHING LOOMS.

987,816.

Specification of Letters Patent. Patented Mar. 28, 1911.

Application filed April 22, 1910. Serial No. 557,073.

To all whom it may concern:

Be it known that I, JONAS NORTHROP, a citizen of the United States, residing at Hopedale, in the county of Worcester and State of Massachusetts, have invented an Improvement in Hoppers for Filling-Replenishing Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The invention to be hereinafter described relates to looms, and more particularly to the type known as filling replenishing looms, wherein, at desired times, a new supply of filling is furnished the weaving instrumentalities.

The present invention has for its object means for controlling the supply of filling carriers as they are directed to transferring position, and in this respect is a development of the generic invention described and claimed in a prior application, Ser. No. 501,482, filed June 11, 1909, wherein a hopper was shown for containing a supply of carriers in plural line formation.

Regardless of structural details in hopper formation, it is desirable for the best results that as the filling carriers move to transferring position, they shall be prevented from turning on their longitudinal axes. In the application referred to, a hopper was shown having capacity in its upper portion to accommodate filling carriers in double line formation, and while this has to a large extent cured the defects incident to carrier rotation, it has been found in practice that for the best results the upper part of the hopper, that is the part above the transferring position, should be so devised that filling carriers moving along the opposite walls of the hopper may not have their adjacent surfaces in contact with each other, all of which will best be made clear from the following description and accompanying drawings which disclose one form of means for carrying the invention into practical effect.

In the drawings:—Figure 1 is a view of a hopper embodying the present invention, looking from the side of the loom, the operating parts of the loom being omitted; Fig. 2 is a central vertical transverse section of the hopper shown in Fig. 1; and Fig. 3 is a horizontal section on the line 3—3, Fig. 2.

The loom frame, the lay having the ordinary and well understood form of shuttle boxes, the transferer 1 mounted to turn about an axis 2 supported from a bracket 3, the depending arm and the means for actuating the transferer when a filling carrier is to be transferred from the hopper to the shuttle may be of any usual form or kind, and as such elements are well understood, no further description thereof need be given.

Extending from the bracket 3 is a web or bracket arm 5, Fig. 2, for sustaining one end of the hopper, a similar web or bracket arm 6 being provided, as pointed out in said prior application, for sustaining the other end of the hopper.

Rising from the bracket arms or webs 5 and 6 are the parts 7 and 8, respectively, which are preferably formed angularly in cross section, as indicated in Fig. 3, and constitute portions of the front and end walls of the hopper, as will be clear from said Fig. 3. Disposed at the rear of the part 7 is a web 9 between which and the front flange of the part 7 the base portions of the filling carriers 10 are contained, the said web 9 being preferably provided with a rib or flange 11. At the rear of the part 8 is a web 12, preferably formed as shown in cross section, Fig. 3, a slot 13 being provided for the passage of filling ends, the construction being such that the parts 7 and 8, in conjunction with their opposite rear webs 9 and 12, respectively, provide a suitable receptacle for filling carriers disposed therein, as shown. Between the webs 9 and 12 at the rear of the hopper, a plate 14 is preferably secured in any suitable manner. Obviously the elements thus far described may be variously formed to constitute a receptacle sustained by the bracket arms 5 and 6 from the loom frame to properly contain filling carriers to be transferred at desired times to the shuttle, and such parts may be braced and further strengthened by a web or bar 15, Fig. 2, extending between the parts 7 and 8 and secured thereto or to the bracket arms 5 and 6 by suitable means, as the bolts 16.

Having reference more particularly to Figs. 1 and 2, the lower portion of the hopper has a throat 17 for the passage of a filling carrier 10 when forced therethrough by the transferer 1. One wall of the throat 17 may be fixed and the other movable in

order that under normal working conditions of the loom, the filling carrier next to be transferred may be properly sustained in transferring position and yet be permitted

5 to pass under the impulse of the transferer.

In the present form of the invention, though not a necessary incident thereof, the rear wall 18 is shown as a fixed or non-yielding wall of the throat, while the front wall

10 of the throat is formed by a slide 19 mounted on the bracket arm 5 and under control of

a spring 20 acting normally to move the slide or front wall of the throat toward the rear wall 18. When in the position shown,

15 Fig. 2, the end 21 of the slide rests against the arm 4 of the transferer which locks the slide from movement to the left until by movement of the arm 4, in imparting trans-

20 ferring movement to the transferer, the slide is free to be moved to the left, Fig. 2, to permit the passage of a filling carrier through the throat 17.

From the throat the walls of the hopper extend in a general upward direction for a

25 short distance to contain a single line formation of the filling carriers as they pass to transferring position. This single line formation may be of an appropriate length to properly insure the presentation of fill-

30 ing carriers singly to transferring position. It has been found in practice, however, that, where the hopper contains only a single line formation of the filling carriers for its

full height, as such carriers move toward

35 transferring position they are liable to, and in fact do turn on their longitudinal axes with the result that the filling either be-

comes too slack by being unwound from the carriers or broken when the carriers turn in

40 the opposite direction. The present invention contemplates means for overcoming this action and to this end the upper portion of the hopper is designed to contain filling

carriers in at least a three line formation,

45 with the result that while the carriers next to the opposite walls of the hopper may tend to turn in one direction as they move toward transferring position, they act on

the interposed carrier in opposite directions

50 and consequently neutralize turning movement of each other. As a means of carrying out this feature of the invention, the hopper is expanded from front to rear at its upper

portion, so that filling carriers moving in contact

55 with the front and rear walls of the hopper will not have their contiguous surfaces in contact, but may bear upon an intermediate carrier, the effect being that the intermediate

carrier by its frictional engagement with its

60 neighbors and the wedging action thereof will act reversely to the turning tendency of such neighbors and prevent rotation there-

of. In the present instance the upper portion of the hopper expands upwardly or

65 flares outwardly until at about a point 21

there shall be at least a triple line formation of filling carriers. For instance, should the carrier *a*, Fig. 2, as it moves downward in the hopper, have a tendency to turn contra-clockwise and the carrier *c* have a tend- 70 ency to turn clockwise, each will act upon the intermediate carrier *b* to turn it in opposite directions, with the result that the frictional engagement of the intermediate carrier *b* with its neighbors *a* and *c* will ef- 75 fectually prevent turning movement of either. This effect will continue as the carriers pass into the lower part of the hopper into the single line formation toward the transferring position. 80

It will be noted that the upper part of the hopper flares outward with some abruptness from the point of single line formation of the carriers and that at its upper part more than three rows or lines of carriers 85 may be accommodated, the present invention being characterized by the fact that the filling carriers moving along the opposite walls of the hopper downward toward single line formation in the lower part of 90 the hopper have disposed between their contiguous surfaces a filling carrier occupying a position intermediate the opposite walls and acting on the adjacent carriers to neutralize any turning movement. Obviously 95 the particular form of the hopper may vary and the invention is not restricted to the particular character of the parts and the manner of their connection and relation except as pointed out by the claims. 100

What is claimed is:

1. In a filling replenishing loom, a filling carrier supply hopper having a lower portion to contain filling carriers in single line formation and a throat for the passage of 105 filling carriers, and an upper portion expanded or enlarged from front to rear to contain filling carriers in at least a three line formation.

2. In a filling replenishing loom, a filling 110 carrier supply hopper comprising a compartment for holding filling carriers in at least a three line formation, and a throat for the discharge of filling carriers.

3. In a filling replenishing loom, a filling 115 carrier supply hopper comprising a compartment having an enlarged upper portion in which carriers adjacent the opposite walls have an intermediate carrier interposed between their contiguous surfaces, and a lower 120 portion provided with a throat for the passage of filling carriers.

4. In a filling replenishing loom, a filling carrier supply hopper comprising a compartment for holding filling carriers in at least 125 a three line formation at its upper portion and in single line formation at its lower portion, and a throat for the passage of filling carriers.

5. In a filling replenishing loom, a filling 130

carrier supply hopper comprising a compartment having an enlarged upper portion in which carriers adjacent the opposite walls have an intermediate carrier interposed between their contiguous surfaces, and a contracted lower portion provided with a throat for the passage of filling carriers.

6. In a filling replenishing loom, a filling carrier supply hopper provided with an enlarged upper portion to contain filling carriers movable along the opposite walls of the hopper, and a filling carrier separating the contiguous surfaces of the carriers movable along said walls and acting to prevent rotation thereof.

7. In a filling replenishing loom, a filling

carrier supply hopper provided with an enlarged upper portion to contain filling carriers movable along the opposite walls of the hopper, and a filling carrier separating the contiguous surfaces of the carriers movable along said walls and acting to prevent rotation thereof, said hopper having a contracted lower portion.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JONAS NORTHROP.

Witnesses:

EVERETT S. WOOD,
SHELLEY D. VINCENT.